REMARKS

Claims 1-12, 18 and 19 currently appear in this application. The Office Action of August 19, 2008, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Election/Restriction

Applicant hereby confirms the election of Group A, claims 1-12. Claims 13-17 have been cancelled.

Specification

Submitted herewith is a new Abstract of the Disclosure.

Rejections under 35 U.S.C. 112

Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject which applicant regards as the invention.

This rejection is respectfully traversed. The claims has been amended to delete the narrow range within the broader range.

Art Rejections

Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters et al., WO 00/72692 in view of Henningfield et al., US 6,790,288. The Examiner alleges that Peters discloses all features of claim 1 except for a heating step. Henningfield is cited for the disclosure that a drying device is configured such that a whey concentrate has a residence time of approximately 4 minutes in the device.

This rejection is respectfully traversed.

Peters describes at page 3, line 33, that the method can be used for concentrating a liquid product with a dry solid content of at least 40%. At page 8 and beyond, Peters discloses the concentration method used to produce whey powder, wherein it is desirable to obtain as large a solid concentration as possible during concentration in order to improve the **later crystallization process of the lactose in the whey** page 8, line 9 notes that the concentration that is obtained

by the method of Peters can be transferred directly to a buffer tank for crystallization and subsequent drying. Peters in clam 1 discloses a process consisting of heating the liquid product to a temperature **above the crystallization temperature** of the liquid product in a first heat exchanger, transferring the liquid to a first separator and flash separating the volatile components from the heated liquid product. It is only after these steps have been completed that the product is brought to a buffer tank for crystallization (page 8, line 9).

An important feature of Peters is that the heating of the liquid occurs at a temperature **above the crystallization temperature** of the liquid product. This is confirmed on page 5, line 8 to the end of the page, wherein Peters discloses that in a method for concentrating a liquid whey product it is important that crystallization of lactose in the product be controlled. In the event that lactose crystallizes during the heating step, the heat exchanger must be cleaned very often. According to page 6, lines 20-24, the risk of crystallization in the heat exchanger can be significantly reduced by heating the product to a

temperature of at least 80-90°C, which is, in the Peters system, a temperature above the crystallization temperature of the liquid. According to page 7, lines 1-5, in order also to reduce the risk of denaturation and Maillard reactions, the liquid product must be heated very quickly, for example, by using a plate heat exchanger in which the contact time of the liquid product with the plates of the heat exchanger is very short. Next, according to page 9, lines 24-31, Peters notes that the disclosed methods makes it possible to concentrate liquid products to a higher concentration **before crystallization and drying**. It is only when the highly concentrated liquid concentrate has left the concentration unit that it will crystallize. In other words, the heat treatment step at 80-90°C does not lead to crystallization of lactose.

There is no disclosure or suggestion in Peters that a heating step be conducted in which the whey concentrate is held at a temperature of at least 75°C for a time between 0.25 and 45 minutes. The Examiner has relied on Henningfield for a heating step of four minutes at a temperature of at least 75°C.

However, Henningfield describes a method for evaporative concentration and crystallization of a lactose containing liquid. The method comprises introducing a liquid having a dry matter content of 40-75% and progressively heating the liquid at a temperature above 40°C, which, in strong contrast to Peters, **is below the crystallization temperature of the liquid**. In the next step, vapor evaporated from the liquid is removed and the liquid is mechanically agitated to provide a crystallization promoting decrease of the viscosity of the liquid with crystals formed and suspended therein (see claim 1). This method permits simultaneous concentrating and crystallization.

Thus, wherein in Henningfield crystallization occurs simultaneously with concentration, Peters discloses a method that prevents such crystallization. One skilled in the art would have no reason to combine the Henningfield method with that of Peters.

The Examiner notes that Henningfield, at paragraph 7, lines 15-20 mentions that the starting material which is fed to the system has a residence time of approximately four minutes. Firstly, it is noted that

in the examples the residence time of about four minutes is only at a temperature of about 65°C, that is, a temperature **below** the crystallization temperature of the liquid. This temperature is more than 10°C, in particular, more than 20°C, lower than the temperatures required in claim 1 of the present application. In other words, also for the reason of temperature differences, one skilled in the art would not be motivated to use the Henningfield residence time in the Peters method. The temperature in Henningfield is lower and below the crystallization temperature of the liquid, whereas the method of Peters requires a temperature **above** the crystallization temperature.

It should be noted that Henningfield concludes at column 2, lines 25 *et. seq.*, Henningfield refers to US 6,335,045. This is an equivalent application to Peters. Henningfield concludes that the subject matter of this cited patent is drawn to a method wherein a concentrate is heated to a temperature above the crystallization temperature, and which concentrate is subsequently cooled to induce crystallization. According to Henningfield, this is a rather complicated process, and the result as

described by Peters appears not always satisfactory in terms of non-caking properties. Again, one skilled in the art reading Henningfield would not be motivated to combine the Henningfield teachings with those of Peters.

In conclusion, it is respectfully submitted that claims 1, 3 and 5 are not obvious over the cited patents. Peters heats at a temperature above the crystallization temperature of the liquid but does not teach that good quality products can be obtained by heating at a temperature of at least 75°C preferably 86°C, for a period of between .25 and 5 minutes. Henningfield, in strong contrast to Peters, teaches only heating to as temperature below the crystallization temperature of the liquid, and teaches that, when in case the temperature is approximately 64°C, a residence time of approximately 4 minutes could be implemented. For this reason, one skilled in the art would have no motivation whatsoever to apply the teachings of Henningfield to the Peters method.

Claims 2, 8, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Peters and Henningfield in view of Peebles, US 2,088,608.

This rejection is respectfully traversed. As noted above, one skilled in the art would have no reason to combine the methods of Peters and Henningfield, as the methods involve different heating temperatures. Peebles adds no reason to combine Peters and Henningfield, as Peebles merely discloses moisture content that may overlap that of the instant claims.

Claims 4, 7, 9 and 10 are rejected under 35 U.S.C. 103(a) as unpatentable over Peters and Henningfield.

This rejection is respectfully traversed. Although Peters discloses is limited to a temperature of up to 90°C, and in a preferred range 70-85°C, Peters explicitly describes that this is in order to prevent unwanted reactions like Maillard reactions to occur. In contrast thereto, in a preferred embodiment of the presently claimed method, the temperature is from 90-100°C. This temperature range is neither disclosed nor suggested by Peters. In fact, to avoid that Maillard reaction, Peters teaches away from such high temperatures. However, the present inventors discovered that by

applying these higher temperatures, an end product of good quality could be obtained.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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